CLAIMS

1. A camera system for environment capture comprising:

a primary camera having a first lens defining a first optical axis extending in a first direction;

a second camera located on a first side of the primary camera and having a second lens defining a second optical axis extending in a second direction; and

a third camera located on a second side of the primary camera and having at third lens defining a third optical axis extending in the second direction such that the third optical axis is parallel to the second optical axis.

2. The camera system according to Claim 1, further comprising means for emulating a first virtual camera by combining environment data captured by the second camera with environment data captured by the third camera.

3. The camera system according to Claim 2, further comprising means for generating an environment map by stitching together the combined environment data with primary environment data captured by the primary camera.

4. The camera system according to Claim 1,

wherein the first lens defines a first nodal point,

wherein the second lens defines a second nodal point,

wherein the third lens defines a third nodal point, and

wherein the primary camera, second camera, and third camera are stacked such that the first, second,

and third nodal points are aligned along a vertical line.

5. The camera system according to Claim 1,

wherein each of the primary camera, the second camera, and the third camera is configured to capture a predefined region of an environment surrounding the camera system,

wherein the primary region captured by the primary camera is defined by a first radial boundary and a second radial boundary,

wherein a second predefined region captured by a second camera is defined by a third radial boundary and a fourth radial boundary, and

wherein the second radial boundary partially overlaps the third radial boundary.

6. The camera system according to Claim 5, wherein the first radial boundary and the second radial boundary define an angle upto 185 degrees.

7. The camera system according to Claim 6, wherein angle is 92 degrees.

8. The camera system according to Claim 1, wherein the support structure comprises:

a base;

a beam extending upward from the base and having a first edge and a second edge, the first edge being perpendicular to the second edge,

wherein the primary camera is fastened to the first edge of the beam, and

wherein the second camera and the third camera are connected to the second edge of the beam.

9. The camera system according to Claim 1, wherein the support structure comprises:

a base;

a first beam extending upward from the base and being connected to a first side edge of the second camera and a first side edge of the third camera; and

a second beam connected to a second side edge of the second camera and to a first side edge of a third camera,

wherein the primary camera is connected to the second beam.

10. The camera system according to Claim 1, further comprising:

a fourth camera having a fourth lens defining a fourth optical axis extending in a third direction; and

a fifth camera having at fifth lens defining a fifth optical axis extending in the third direction such that the fifth optical axis is parallel to the fourth optical axis.

11. The camera system according to Claim 10, further comprising:

a sixth camera having a sixth lens defining a sixth optical axis extending in a fourth direction; and

a seventh camera having at seventh lens defining a seventh optical axis extending in the fourth direction such that the seventh optical axis is parallel to the sixth optical axis.

12. A camera system for environment capture comprising:

a first camera defining a first optical axis extending in a first direction;

a second camera aligned with the first camera, the second camera defining a second optical axis extending in the first direction such that the first optical axis is parallel to the second optical axis;

a third camera defining a third optical axis extending in a second; and

a fourth camera defining a fourth optical axis extending in the second direction such that the third optical axis is parallel to the fourth optical axis.

13. The camera system according to Claim 12, further comprising means for emulating a first virtual camera defining a first virtual optical axis extending in the first direction by combining first environment data captured by the first camera with second environment data captured by the second camera to form a first combined environment data, and for emulating a second virtual camera defining a second virtual optical axis extending in the second direction by combining third environment data captured by the third camera with fourth environment data captured by the fourth camera to form a second combined environment data, wherein the first virtual optical axis intersects the second virtual optical axis at a virtual nodal point.

14. The camera system according to Claim 13, further comprising means for generating an environment map by stitching together the first combined environment data with the second combined environment data.

15. A method for generating an environment map comprising:

capturing first environment data using a primary camera having a first lens defining a first optical axis extending in a first direction, second environment data using a second camera having a second lens defining a second optical axis extending in a second direction; and third environment data using a third camera having at third lens defining a third optical axis extending in the second direction such that the third optical axis is parallel to the second optical axis;

combining the second and third environment data to emulate a virtual camera having a virtual nodal point located at the primary nodal point and a virtual optical axis extending in the second horizontal direction; and

stitching the primary environment data with the combined second and third environment data.

16. The method according to Claim 15, further comprising

capturing fourth environment data using a fourth camera having a fourth lens defining a fourth optical axis extending in a third direction; and fifth environment data using a fifth camera having at fifth lens defining a fifth optical axis extending in the third direction such that the fifth optical axis is parallel to the fourth optical axis; and

combining the fourth and fifth environment data to emulate a second virtual camera having a second virtual nodal point located at the primary nodal point and a

second virtual optical axis extending in the third direction,

wherein the step of stitching further comprises stitching the primary environment data with the combined second and third environment data and the combined fourth and fifth environment data.

17. The method according to Claim 15, further comprising displaying the stitched environment data using an environment display system.